

WHAT IS CLAIMED IS:

1. A piezoelectric transformer comprising:

5 a piezoelectric member having two opposite rectangular major surfaces as first and second surfaces, and four side surfaces connecting the first and second surfaces, the piezoelectric member being longitudinally divided into two portions to have a first portion and a second portion, thereby longitudinally dividing each of the  
10 first and second surfaces into a first surface portion and a second surface portion;

an input electrode formed on the first surface portion of the first surface of the piezoelectric member;

15 a ground electrode formed on the first surface portion of the second surface of the piezoelectric member while being vertically symmetrical with the input electrode; and

an output electrode formed on the second portion of the piezoelectric member at an end of the second portion spaced away from the input electrode, the output electrode  
20 including a first electrode portion formed on the first surface of the piezoelectric member, a second electrode portion formed on the second surface of the piezoelectric member while being vertically symmetrical with the first  
25 electrode portion, and a third electrode portion formed on

the side surface of the piezoelectric member spaced away from the input electrode, the third electrode portion serving to connect the first and second electrode portions.

5           2. A piezoelectric transformer comprising:

10           a piezoelectric member having two opposite rectangular major surfaces as first and second surfaces, and four side surfaces connecting the first and second surfaces, the piezoelectric member being longitudinally divided into three portions to have opposite end portions, and an intermediate portion arranged between the opposite end portions, thereby longitudinally dividing each of the first and second surfaces of the piezoelectric member into opposite end surface portions, and an intermediate surface  
15           portion;

          an input electrode formed on the intermediate surface portion of the first surface of the piezoelectric member;

          a ground electrode formed on the second surface of the piezoelectric member while being vertically symmetrical  
20           with the input electrode; and

          a pair of output electrodes respectively formed on the opposite end portions of the piezoelectric member at opposite ends of the piezoelectric member, each of the output electrodes including a first electrode portion  
25           formed on the first surface of the piezoelectric member, a

second electrode portion formed on the second surface of the piezoelectric member while being vertically symmetrical with the first electrode portion, and a third electrode portion formed on the side surface of the piezoelectric member arranged at the end of the piezoelectric member associated therewith, the third electrode portion serving to connect the first and second electrode portions.

3. The piezoelectric transformer according to claim 1 or 2, wherein the first and second electrode portions of the output electrode has an electrode width of 0.5 mm or more.

4. The piezoelectric transformer according to claim 1 or 2, wherein positive voltage is applied to the input and ground electrodes, whereas negative voltage is applied to the first electrode portion of the output electrode, whereby the piezoelectric transformer is longitudinally polarized at an output section thereof.

5. The piezoelectric transformer according to claim 1 or 2, wherein the output electrode is connected to an external electrode at the center of the first electrode portion thereof.

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cont.

6. The piezoelectric transformer according to claim 1  
or 2, wherein each of the first and second electrode  
portions of the output electrode is adjusted in width to  
adjust output impedance exhibited at an output stage of the  
5 piezoelectric transformer when the output stage is coupled  
to a load.

7. The piezoelectric transformer according to claim 1  
or 2, wherein the input, ground, and output electrodes are  
10 formed in accordance with a screen printing method.

8. A method for manufacturing a piezoelectric  
transformer as claimed in claim 1 or 2, comprising the  
steps of:

15 preparing a piezoelectric member having two opposite  
rectangular major surfaces as first and second surfaces,  
and four side surfaces connecting the first and second  
surfaces;

forming an input electrode and a first electrode  
20 portion of an output electrode on the first surface of the  
piezoelectric member so that the input electrode and the  
first electrode portion are spaced apart from each other;

forming a ground electrode and a second electrode  
portion of the output electrode on the second surface of  
25 the piezoelectric member while allowing the ground

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electrode and the second electrode portion to be vertically symmetrical with the input electrode and the first electrode portion, respectively; and

printing a third electrode portion of the output  
5 electrode on the side surface of the piezoelectric member spaced away from the input and ground electrodes so that the third electrode portion connects the first and second electrode portion, whereby the first through third electrode portions connected together form the output  
10 electrode.

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